



Green Seas : the Good, the Bad and the Ugly

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GREEN SEAS: THE GOOD, THE BAD, AND THE UGLY

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An aerial photograph of a vast blue ocean with intricate white foam patterns from breaking waves. The foam creates a complex, web-like texture across the dark blue water. A semi-transparent dark blue horizontal band is positioned across the middle of the image, serving as a background for the title text.

THE BLUE OCEAN

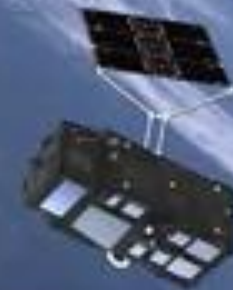
Humanity realised pretty early that water that isn't blue is way more interesting...



“...all the waters that were in the river turned to blood. And the fish that were in the river died, and the water stank”
The Bible, Exodus 7:20–21

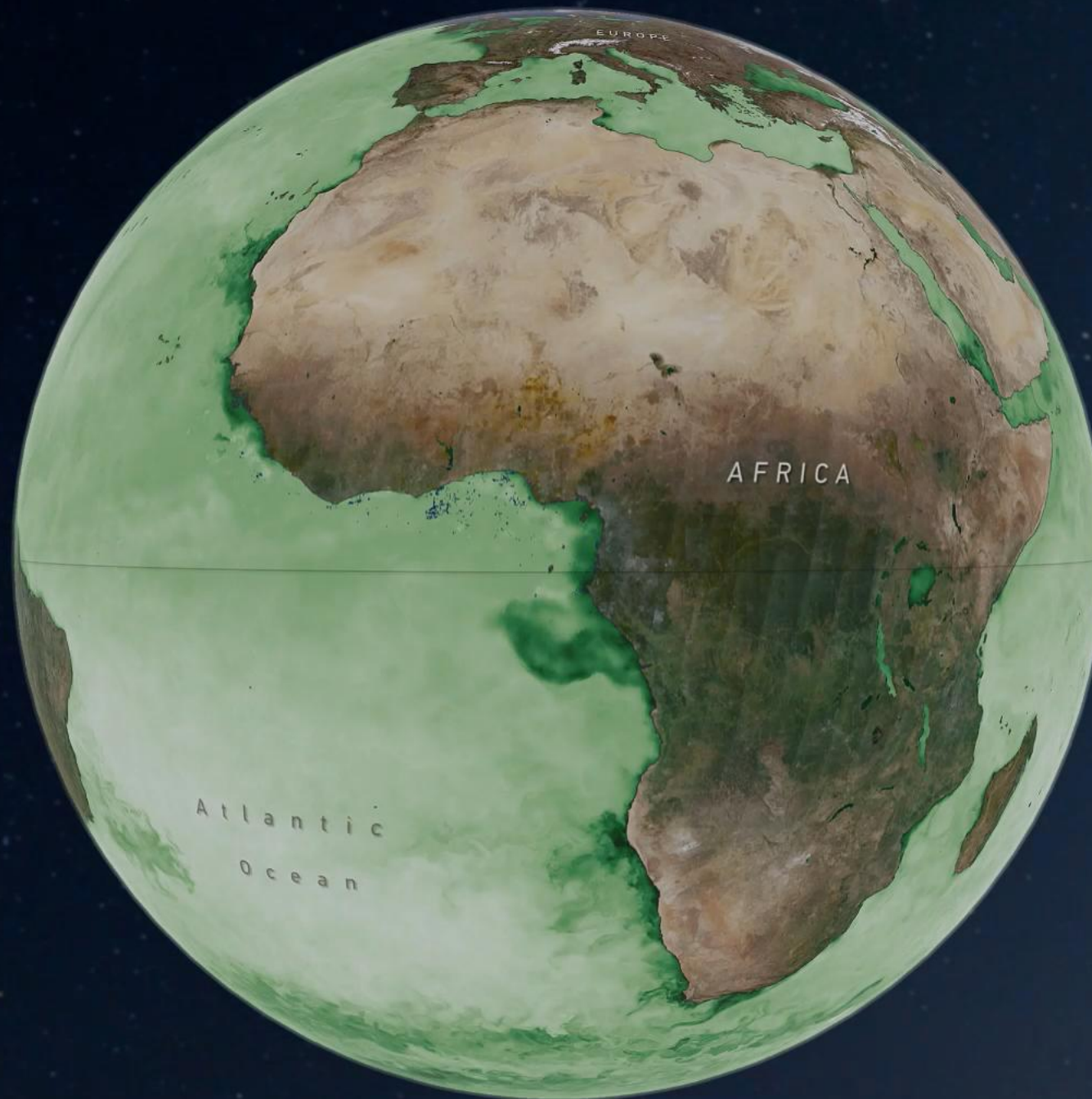
“Oh, wow Father Secchi! We can measure water transparency!”
Pope Pius IX (...maybe)

“Many of these creatures so low in the scale of nature are most exquisite in their forms & rich colours.”
Charles Darwin on phytoplankton



...and now we can monitor colour from space!

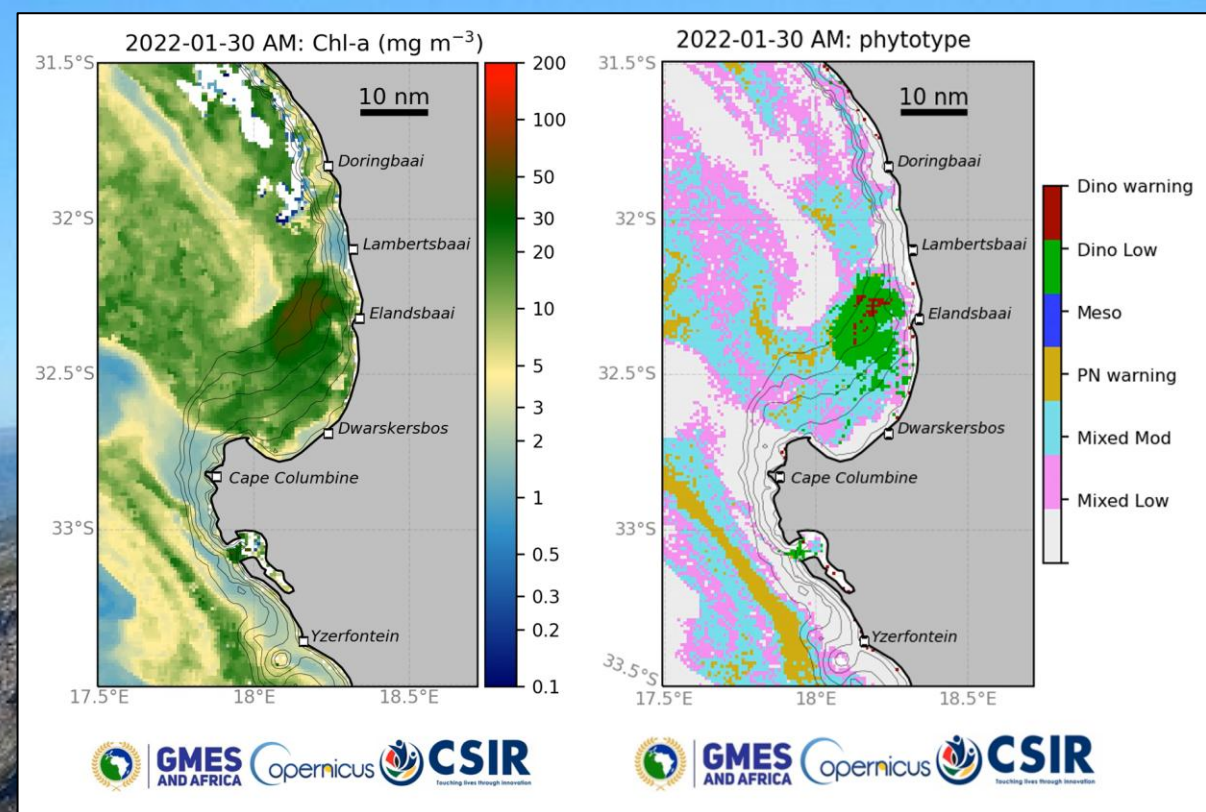
GREEN SEAS: THE GOOD



“Harmful algal bloom causes five tonnes of West Coast rock lobster to crawl out of the ocean”

Mail & Guardian, 13 Feb 2023

GREEN (AND RED!) SEAS: THE BAD



GREEN SEAS: THE UGLY



“Over 2016–2019, across Member States, 14.1% of groundwater still exceeded the nitrates concentration limit set for drinking water. According to the findings, water reported as eutrophic in the EU includes 81% of marine waters, 31% of coastal waters, 36% of rivers and 32% of lakes”

GREEN SEAS: A BEAUTIFUL FUTURE?

- Satellites can monitor blooms – providing warnings and assessing policy efficacy.
- Satellites can also support reducing input of nutrients into the environment, via smart agriculture, catchment and water management.
- Initiatives like digital twins can distill data to empower decision makers with information to address these challenges across the traditional barriers between weather, land, and sea.



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